

# JAPANESE PATENT OFFICE – Patent Abstracts of Japan

Publication Number: 11286778 A

Date of Publication: 1999.10.19

Int.Class: C23C 16/26

Application Number: 11019780

Date of Filing: 1999.01.28

Applicant: SEMICONDUCTOR ENERGY  
LAB CO LTD

Inventor: YAMAZAKI SHUNPEI

HAYASHI SHIGENORI

ISHIDA NORIYA

SASAKI MARI

TAKEYAMA JUNICHI

FORMATION OF DIAMONDLIKE CARBON  
FILM

## Abstract:

**PROBLEM TO BE SOLVED:** To form a film of which hydrophilic properties, hardness and electrical conductivity are controlled by forming a substrate film of silicon nitride or the like on a member in the same reaction vessel and thereafter forming a diamondlike carbon thereon.

**SOLUTION:** As the one for plasma CVD, a pair of electrodes are separately arranged. By using electromagnetic energy, large electric power is fed to a reaction space to control the phases of the electrodes, and plasma having synergistic effect is generated in the reaction space. This plasma space is provided with a member having the face to be treated. At first, on the member face, as a substrate film, a silicon nitride film or a silicon carbide film is formed by plasma CVD reaction. Next, into this reaction space, gaseous hydrocarbon such as methane, ethylene or the like, gaseous carbon fluoride, B

COPYRIGHT: (C)1999,JPO

B12